

Appl. No. 09/762,294  
Response dated August 13, 2003  
Reply to Office action of July 17, 2003

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (original): A non-cytolytic recombinant human immunodeficiency virus-1 (HIV-1) wherein the natural signal sequence (NSS) of the virus' envelope glycoprotein is replaced with an essentially non-cytolytic signal sequence.

Claim 2 (original): A non-cytolytic recombinant HIV-1 wherein the natural signal sequence (NSS) of the virus' envelope glycoprotein is modified to provide an essentially non-cytolytic signal sequence.

Claim 3 (original): A non-cytolytic recombinant retrovirus according to claim 2 wherein the modified essentially non-cytolytic signal sequence is modified to contain no more than one positively charged amino acid.

*Continued*  
Claim 4 (original): A non-cytolytic recombinant retrovirus according to claim 3 wherein the modified essentially non-cytolytic signal sequence is modified to contain zero positively charged amino acids.

Claim 5 (original): A retrovirus according to claim 1 wherein the NSS is replaced with mellitin signal sequence (MSS) or IL-3 signal sequence (ILSS).

Claim 6 (original): A retrovirus according to any one of claims 1-5 wherein the retrovirus is rendered avirulent.

Claim 7 (original): A retrovirus according to claim 6 wherein the retrovirus is rendered avirulent by deletion of the *nef* gene.

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112 P2 → all component

Claim 8 (original): A vaccine incorporating the retrovirus of claim 1.

VACCINE

Claim 9 (currently amended): A method of preventing or treating a retroviral infection comprising administering to an animal in need thereof, an effective amount of an essentially non-cytolytic recombinant HIV-1 wherein the NSS of the virus' envelope glycoprotein is replaced with an essentially non-cytolytic NSS signal sequence and the retrovirus is rendered avirulent.

Claim 10 (currently amended): A method of preventing or treating a retroviral infection comprising administering to an animal in need thereof, an effective amount of an essentially non-cytolytic recombinant HIV-1 wherein the NSS of the virus envelope glycoprotein is modified to provide a non-cytolytic NSS signal sequence.

Claim 11 (currently amended): The method of claim 10 where the modification to provide a non-cytolytic NSS signal sequence results in no more than one positively charged amino acid in the NSS signal sequence.

Protein

Claim 12 (currently amended): The method of claim 11 where the modification to provide a non-cytolytic NSS signal sequence results in zero positively charged amino acids.

Claim 13 (original): A method according to claim 9 wherein the non-cytolytic signal sequence is selected from the group consisting of the mellitin sequence and the IL-3 signal sequence.

Claim 14 (original): A method according to claim 9 wherein the virus is rendered avirulent by deletion of the *nef* gene.

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Claim 15 (currently amended): A vaccine comprising an essentially non-cytolytic recombinant HIV-1 wherein the NSS of the virus' envelope glycoprotein is replaced with an essentially non-cytolytic NSS signal sequence.

Claim 16 (currently amended) A vaccine comprising an essentially non-cytolytic recombinant HIV-1 wherein the NSS of the retrovirus envelope glycoprotein is modified to provide an essentially non-cytolytic NSS signal sequence and the retrovirus is rendered avirulent.

Claim 17 (currently amended): A vaccine according to claim 16 wherein the natural signal sequence is modified to reduce the number of ~~positive~~ positively charged amino acids to no more than one ~~positive~~ positively charged amino acids.

*Brand* Claim 18 (currently amended): A vaccine according to claim 17 wherein the number of ~~positive~~ positively charged amino acids is zero.

Claim 19 (original): A vaccine according to claim 15 wherein the essentially non-cytolytic signal sequence is selected from the group consisting of the mellitin sequence and the IL-3 signal sequence.

Claim 20 (original): A vaccine according to claim 15 wherein the virus is rendered avirulent by deletion of the *nef* gene.

Claim 21 (original): A vaccine according to claim 15 further comprising an adjuvant.

Claims 22-30 (canceled).